



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/602,054	06/24/2003	Dae-Ho Choo	61920219D1	1023
22150	7590	02/20/2009	EXAMINER	
F. CHAU & ASSOCIATES, LLC 130 WOODBURY ROAD WOODBURY, NY 11797				RUDE, TIMOTHY L
ART UNIT		PAPER NUMBER		
2871				
MAIL DATE		DELIVERY MODE		
02/20/2009		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/602,054	CHOO ET AL.	
	Examiner	Art Unit	
	TIMOTHY RUDE	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 01 December 2008.
 2a) This action is **FINAL**. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 57-77 is/are pending in the application.
 4a) Of the above claim(s) 59 and 66-77 is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 57,58 and 60-65 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ . |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____. | 6) <input type="checkbox"/> Other: _____ . |

DETAILED ACTION

Claims

Claims 57 and 62 are amended.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

1. Claim 57 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawasumi et al (Kawasumi) USPAT 5,978,065 in view of Adachi, Japanese patent application publication JP 56114928 A and Sakai et al [Sakai] USPAT 6,222,603.

As to claim 57, Kawasumi discloses (Figures 1A-3B) apparatus and a method [system or apparatus] for manufacturing liquid crystal displays (entire patent, background of the invention, and especially col. 5, line 13 through col. 7, line 14), comprising: applying sealant on one of two substrates of a mother glass, the mother glass having at least one liquid crystal cell (col. 5, lines 14-37) [inherently requires Applicant's sealant applying unit, even if it is manual], a substrate-attaching unit, and applying a predetermined force [pressing] toward each other, 5 and 7 [Figures 1C and 3B], conjoining substrates in a vacuum (background, suitable though more costly method – affords better degasification of liquid crystal material; please note numerous references teach these steps/apparatus.) exposure unit hardening the sealant [Fig 2]. Please note Kawasumi states his method *may* be done without costly vacuum;

Kawasumi does *not* state his method *must* be done without costly vacuum [“not necessary to use an expensive vacuum apparatus” col. 7, lines 1-15].

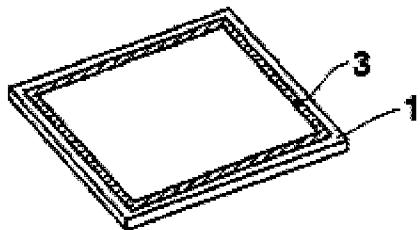
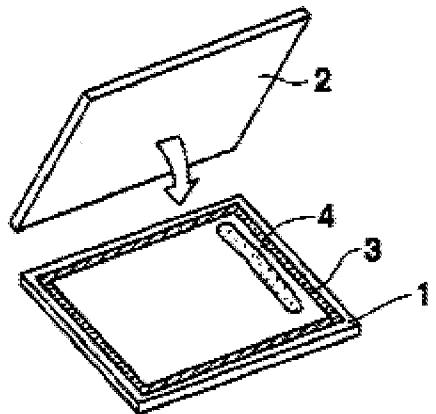
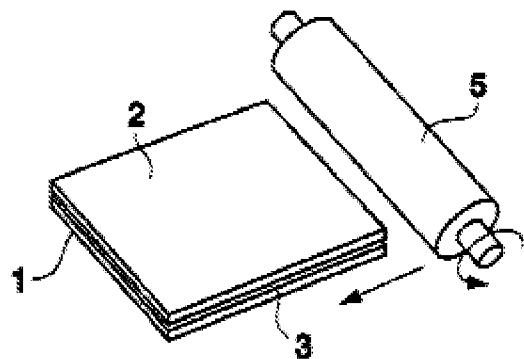
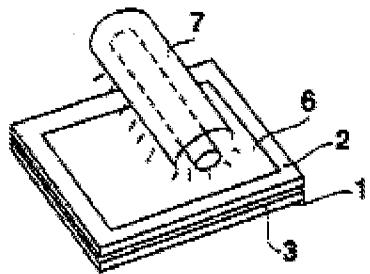
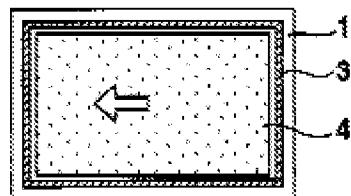
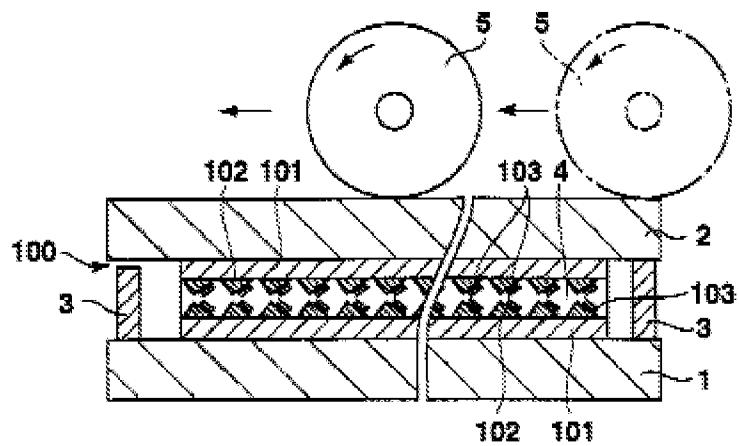
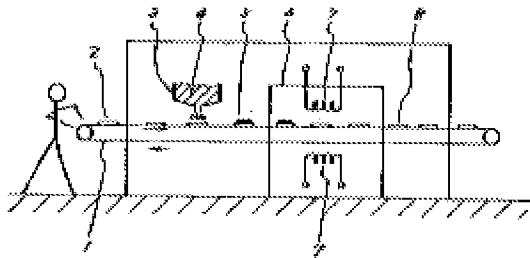
FIG. 1A**FIG. 1B****FIG. 1C**

FIG. 2**FIG. 3A****FIG. 3B**

Kawasumi does not explicitly disclose 1) the use of first loading unit and an in-line conveying unit nor 2) substrate-attaching unit that comprises: a substrate-attaching

vacuum chamber comprising: a first compression plate and a second compression plate supporting the two substrates.

Adachi teaches 1) the use of a first loading unit [at left in illustration] and a belt conveyor to provide a cleaner environment for the operators.



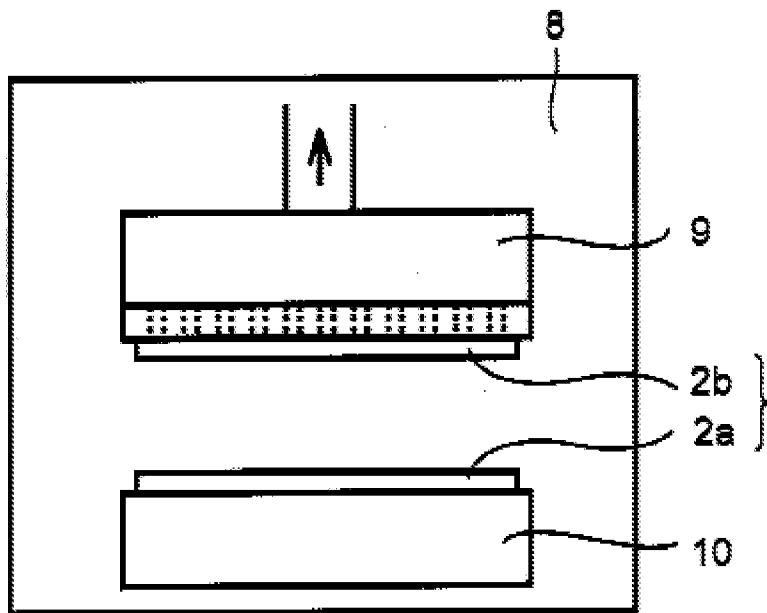
Adachi is evidence that ordinary workers in the art of liquid crystals would find the reason, suggestion, or motivation to add the use of a first loading unit and a belt conveyor to provide a cleaner environment for the operators.

Therefore, it would have been obvious to one having ordinary skill in the art of liquid crystals at the time the invention was made to modify the LCD system of Kawasumi with the first loading unit and a belt conveyor of Adachi to provide a cleaner environment for the operators.

Saki teaches 2) a substrate-attaching unit comprises: a substrate-attaching vacuum chamber comprising: a first compression plate and a second compression plate supporting the two substrates and applying a predetermined force toward each other wherein the air-pressure of the vacuum chamber is then decreased, and the alignment of a pair of substrates is performed and a cell gap is formed by pressing the substrates toward each other, by which the gap precision, the gap uniformity and the

alignment precision of an LCD device can be improved [Entire patent, especially Abstract, Figure 3, and col. 6, line 53 through col. 7, line 30].

FIG. 3



Sakai is evidence that ordinary workers in the art of liquid crystals would find the reason, suggestion, or motivation to add the use of a first compression plate and a second compression plate supporting the two substrates and applying a predetermined force toward each other wherein the air-pressure of the vacuum chamber is then decreased, and the alignment of a pair of substrates is performed and a cell gap is formed by pressing the substrates toward each other, by which the gap precision, the gap uniformity and the alignment precision of an LCD device can be improved [Entire patent, especially Abstract and Figure 3].

Therefore, it would have been obvious to one having ordinary skill in the art of liquid crystals at the time the invention was made to modify the LCD system of Kawasumi with a first compression plate and a second compression plate supporting the two substrates and applying a predetermined force toward each other of Sakai wherein the air-pressure of the vacuum chamber is then decreased, and the alignment of a pair of substrates is performed and a cell gap is formed by pressing the substrates toward each other, by which the gap precision, the gap uniformity and the alignment precision of an LCD device can be improved [Entire patent, especially Abstract and Figure 3].

2. Claims 58 and 60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawasumi in view of Adachi and Sakai as applied to claim 57 above, and further in view of Deem USPAT 2,394,293.

Kawasumi in view of Abachi and Sakai teach the in-line system of claim 57.

Kawasumi in view of Abachi and Sakai do not explicitly teach an apparatus wherein the substrate-attaching unit includes two or more vacuum chambers arranged in parallel.

Deem teaches that multiple vacuum [exhausting] sections, in an in-line manufacturing apparatus, may “obviously be placed in parallel to secure any desired

through put or capacity over and beyond that obtainable with one unit." [page 3, right column, lines 5-14].

Deem is evidence that ordinary workers in the art of liquid crystals would find the reason, suggestion, or motivation to add the use of multiple vacuum chambers, in an in-line manufacturing apparatus, placed in parallel to secure any desired through put or capacity over and beyond that obtainable with one unit." [page 3, right column, lines 5-14].

Therefore, it would have been obvious to one having ordinary skill in the art of liquid crystals at the time the invention was made to modify the LCD system of Kawasumi and Adachi with the multiple vacuum chambers of Deem, in an in-line manufacturing apparatus, placed in parallel to secure any desired through put or capacity over and beyond that obtainable with one unit." [page 3, right column, lines 5-14].

3. Claims 61-65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawasumi in view of Adachi and Sakai and further in view of Harada et al (Harada) USPAT 5,731,860.

As to claims 61-65, Kawasumi in view of Abachi and Sakai teach the in-line system of claim 57.

Kawasumi in view of Abachi and Sakai do not explicitly teach the use of vacuum chucks with holes and a vacuum sequence in the substrate attaching and sealant curing processes.

Harada teaches the use of such an apparatus to achieve precision cell gap and high production yield [Abstract and entire disclosure].

Harada is evidence that ordinary workers in the art of liquid crystals would find the reason, suggestion, or motivation to add the use of vacuum chucks with holes and a vacuum sequence [col. 8, lines 31-56] in the substrate attaching and sealant curing processes to achieve precision cell gap and high production yield [Abstract and entire disclosure].

Therefore, it would have been obvious to one having ordinary skill in the art of liquid crystals at the time the invention was made to modify the LCD system of Kawasumi and Adachi with the vacuum chucks with holes and a vacuum sequence [col. 8, lines 31-56] of Harada in the substrate attaching and sealant curing processes to achieve precision cell gap and high production yield [Abstract and entire disclosure].

Please note the principles of vacuum chucking and vacuum sequence [col. 8, lines 31-56] are robustly taught by Harada in such a way as to render numerous minor structural variations (e.g., tubes, slits, holes, etc.) obvious to one of ordinary skill in the art.

Response to Arguments

Applicant's arguments filed on 01 December 2008 have been fully considered but they are not persuasive.

Applicant's ONLY substantive arguments are as follows:

- (1) Regarding base claim 57, references do not teach the newly added limitations.
- (2) Regarding claim 57, Kawasumi teaches away so references are not combinable.
- (3) Dependent claims are allowable because they directly or indirectly depend from an allowable base claim.

Examiner's responses to Applicant's ONLY arguments are as follows:

- (1) It is respectfully pointed out that Sakai is applied to teach newly added limitations.
- (2) It is respectfully pointed out that the base reference *may* teach away; it is the secondary reference that may not teach away. Also, Kawasumi does NOT teach away. It merely says that one may perform the method without vacuum ["not necessary to use an expensive vacuum apparatus" col. 7, lines 1-15].
- (3) It is respectfully pointed out that in so far as Applicant has not argued rejection(s) of the limitations of dependent claim(s), Applicant has acquiesced said

rejection(s).

Conclusion

Any references cited but not applied are relevant to the instant Application. Korean publication 100487258 B1 provided in IDS filed 18 September 2006 is considered relevant to the instant Application.

Applicant's amendment necessitated any new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TIMOTHY RUDE whose telephone number is (571)272-2301. The examiner can normally be reached on Increased Flex Time Program.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nelms C. David can be reached on (571) 272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

tlr

/TIMOTHY RUDE/

Primary Examiner, Art Unit 2871